

Clean Copy Of All Pending Claims

20. A *Bacillus* strain capable of growth and sporulation comprising:
- a) a homologous *spoIIIE* gene from another bacterium partly or wholly replacing an endogenous *spoIIIE* gene; and
 - b) two reporter genes, wherein each reporter gene is operatively linked to a promoter and responsive to the action of σ^F during sporulation; and wherein the first reporter gene is located in a segment of the DNA that is trapped in a prespore compartment when SpoIIIE function is impaired and the second reporter gene is located outside said DNA segment.
21. The *Bacillus* strain of claim 20, wherein the *spoIIIE* gene has been partly or wholly replaced by a homologous gene from *Streptococcus pneumoniae*.
22. The *Bacillus* strain of claim 20, wherein the *Bacillus* strain is a *B. subtilis*.
23. A method of assessing an agent for antibiotic activity comprising the steps of :
- a) incubating at least one *Bacillus* strain of claim 20, in the presence of the agent; and
 - b) observing expression of the reporter gene or genes; wherein expression of only one of two reporter genes indicates that the agent acts as an antibiotic.

24. The method of claim 23, wherein the *Bacillus* strain is induced to sporulate in the presence of the agent.

25. The method of claim 23, wherein the *Bacillus* strain is induced to sporulate and is contacted with the agent just prior to asymmetric cell division.

26. A panel comprising a plurality *Bacillus* strains of claim 20, wherein the *spoIIIE* gene of each *Bacillus* strain in the panel has been partly or wholly replaced by a homologous *spoIIIE* gene from different bacteria.

27. A method of assessing an agent for antibiotic activity comprising the steps of:

- a) incubating a panel of different *Bacillus* strains of claim 26, in the presence of the agent; and
- b) observing expression of the reporter gene or genes; wherein expression of only one of two reporter genes in a strain indicates that the agent acts as an antibiotic.

28. A method of determining whether an agent inhibits SpoIIIE function in *Bacillus* species, comprising the steps of:

- a) inducing the *Bacillus* strain of claim 20 to sporulate in the presence of the agent; and

- b) observing expression of the first and the second reporter gene; wherein expression of only one of two reporter genes indicates that the agent inhibits the growth of the *Bacillus* strain.

29. A method for determining whether an agent inhibits the growth of a bacterium comprising the steps of:

- a) incubating a *Bacillus* strain of claim 20 in the presence of the agent, and
- b) observing expression of the one or more reporter genes; wherein expression of only one of two reporter genes indicates that the agent inhibits the growth of the *Bacillus* strain.

30. A method of killing or inhibiting the growth of bacteria comprising contacting the bacteria with an agent identified by the method of claim 29.

31. A *Bacillus* strain capable of growth and sporulation comprising:

- a) a homologous cell division gene from another bacterium partly or wholly replacing a cell division gene; and
- b) two different reporter genes; wherein the first reporter gene has a promoter which is dependent on active σ^F or σ^E factor, and the second reporter gene provides a measure of the synthesis of the (inactive) σ^F or σ^E factor.

32. The *Bacillus* strain of claim 31, wherein the cell division gene is selected from group consisting of divIB, divIC, divIVA, ftsA, ftsA, ftsL, ftsZ and pbpB.
33. The *Bacillus* strain of claim 31, wherein the *Bacillus* strain is a *B. subtilis* strain.
34. A method of assessing an agent for antibiotic activity, comprising the steps of :
- a) incubating at least one *Bacillus* strain of claim 31, in the presence of the agent; and
 - b) observing expression of the reporter gene or genes; wherein reduced expression of the reporter gene which is dependent on active σ^F or σ^E factor is a measure of antibiotic activity.
35. The method of claim 34, wherein the *Bacillus* strain is induced to sporulate in the presence of the agent.
36. The method of claim 34, wherein the *Bacillus* strain is induced to sporulate and is contacted with the agent just prior to asymmetric cell division.
37. A panel comprising a plurality *Bacillus* strains of claim 31, wherein the cell division gene of each *Bacillus* strain in the panel has been partly or wholly replaced by a homologous cell division gene from different bacteria.

38. A method of assessing an agent for antibiotic activity, comprising the steps of:

- a) incubating a panel of different *Bacillus* strains of claim 37, in the presence of the agent; and
- b) observing expression of the reporter gene or genes; wherein reduced expression of the reporter gene which is dependent on active σ^F or σ^E factor in a strain is a measure of antibiotic activity.

39. A method of determining whether an agent inhibits cell division in *Bacillus* species, comprising the steps of:

- a) inducing the *Bacillus* strain of claim 31 to divide asymmetrically in the presence of the agent; and
- b) observing expression of the first and second reporter genes; wherein reduced expression of the reporter gene which is dependent on active σ^F or σ^E factor is a measure of cell division inhibition.

40. A method for determining whether an agent inhibits the growth of a bacterium comprising the steps of:

- a) incubating a *Bacillus* strain of claim 31 in the presence of the agent; and
- b) observing expression of the one or more reporter genes; wherein reduced expression of the reporter gene which is dependent on active σ^F or σ^E factor is a measure of growth inhibition.

41. A method of killing or inhibiting the growth of bacteria, comprising contacting the bacteria with an agent identified by the method of claim 40.
42. A *Bacillus* strain capable of growth and sporulation comprising:
- a) a mutated *spoIIIE* gene, wherein the mutation results in blocking transfer of the prespore chromosome; and
 - b) a homologous *spoOJ* gene from another bacterium partly or wholly replacing an endogenous *spoOJ* gene; and
 - c) one or two different reporter genes, wherein at least one reporter gene is operatively linked to a promoter which is dependent on σ^F factor, and placed at a location wherein impaired SpoOJ function leads to increased trapping and increased expression in the prespore.
43. The *Bacillus* strain of claim 42, further comprising an *soj* mutation.
44. The *Bacillus* strain of claim 42, wherein the *Bacillus* strain is a *B. subtilis* strain.
45. A method of assessing an agent for antibiotic activity, comprising the steps of :
- a) incubating at least one *Bacillus* strain of claim 42, in the presence of the agent; and

- b) observing expression of the reporter gene or genes; wherein increased expression of one of the reporter genes indicates the agent acts as an antibiotic.

46. The method of claim 45, wherein the *Bacillus* strain is induced to sporulate in the presence of the agent.

47. The method of claim 45, wherein the *Bacillus* strain is induced to sporulate and is contacted with the agent just prior to asymmetric cell division.

48. A panel comprising a plurality *Bacillus* strains of claim 42, wherein the *spoOJ* gene of each *Bacillus* strain in the panel has been partly or wholly replaced by a homologous *spoOJ* gene from different bacteria.

49. A method of assessing an agent for antibiotic activity, comprising the steps of:

- a) incubating the panel of *Bacillus* strains of claim 48, in the presence of the agent; and
- b) observing expression of the reporter gene or genes; wherein increased expression of one of the reporter genes in a strain indicates the agent acts as an antibiotic.

50. A method of determining whether an agent inhibits *SpoOJ* function in *Bacillus* species, comprising the steps of:

- a) inducing the *Bacillus* strain of claim 42 to divide asymmetrically in the presence of the agent; and
- b) observing expression of the first and second reporter gene; wherein increased expression of one of the reporter genes indicates that the agent inhibits Spo*OJ* function.

51. A method for determining whether an agent inhibits the growth of a bacterium comprising the steps of:

- a) incubating a *Bacillus* strain of claim 42 in the presence of the agent; and
- b) observing expression of the one or more reporter genes; wherein increased expression of one of the reporter genes indicates that the agent inhibits growth.

52. A method of killing or inhibiting the growth of bacteria, comprising contacting the bacteria with an agent identified by the method of claim 51.